IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application:

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Applicant	:	Frederick W. Ryan, Jr. et al.	
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Commissioner for Patents
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RESPONSE

Sir:

In response to the Office Action mailed March 18, 2008, attached please find the following:

1.) Remarks (pages 2-10).

REMARKS

No claims have been cancelled or amended by this response. Claims 1-34 are pending in this application.

Claims 1, 3-8, 11-13, 16, 18-24, and 26-32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Moh et al. (US 6,004,048) in view of Bailey et al. (U.S. 6,154,734). Claims 2, 17 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Moh et al. in view of Bailey et al. and further in view of Gilham (U.S. 2002/0046183). Claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Moh et al. in view of Bailey et al. and further in view of Carroll et al. (US 2002/0083018). Claims 14, 15, 33 and 34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Moh et al. in view of Bailey et al. and further in view of Athens et al. (US 2003/0177104). Reconsideration is respectfully requested.

The present invention is directed to increasing the throughput of a mailing machine by continuously computing indicia prior to and during mail processing. The indicia generation process is divided into two distinct parts: cryptographic calculation and funds committal/printing. Indicium data are continuously computed and stored in a buffer until needed. This enables several indicium data to be computed and stored prior to processing of a mail piece by the mailing machine. The indicium data is used to provide an indicium that evidences postage for a mail piece. Immediately prior to printing an indicium evidencing postage on a mail piece, the funds for the indicium are accounted for by updating the registers of the mailing machine. Since a number of indicium may be pre-computed prior to the start of processing the mail through the mailing machine, the throughput of the mailing machine can be increased.

In view of the above, claim 1 is directed to a method for a mailing machine to provide evidence of postage for mail pieces that comprises "setting a postage value; generating a first indicium based on the postage value, the first indicium being generated without accounting for the first indicium in the mailing machine; storing the first indicium in a buffer; continuously generating a plurality of subsequent indicia in

immediate succession without accounting for the plurality of subsequent indicia in the mailing machine and storing the plurality of subsequent indicia in the buffer until the buffer is full or a new postage value is set; determining if a mail piece is present in the mailing machine; if a mail piece is present, retrieving one of the indicium from the buffer; accounting for the indicium in at least one register in the mailing machine when the indicium is retrieved from the buffer; and using the indicium to provide evidence of postage for the mail piece."

Moh et al., in contrast, is directed to a system for controlling the printing a postage indium on a mailpiece in a mail handling system that transports mailpieces of varying size and weight at a high rate of speed to ensure the quality of the printed image at the required location on each mailpiece. More specifically, Moh et al. is directed to the control of energizing a digital print head, e.g., ink jet or laser printers, in synchronization with the movement of a mailpiece to produce a high quality image.

In Moh, an Application Specific Integrated Circuit (ASIC) is utilized to draw indicium image data from a memory device and provide this image data to the print head on a column by column basis in a synchronous manner. Encoder pulses from an encoder are used to synchronize the energizing of the print head with movement of the mailpiece. However, variations in the weight of each mailpiece being processed can result in variations in the rate at which the mailpieces will pass by the print head. Additionally, tolerances in the encoder could also result in variations between the encoder pulses. Thus, while the ASIC provides image data to the print head at a fixed rate, the use of the image data at the print head was asynchronous because of the variations described above. This resulted in a corruption of the data if the print head utilized the ASIC produced image data at a slower rate than it is generated by the ASIC, since the single column data buffer will be receiving the next column of data before the previous column of image data has been provided to the print head. Alternatively, if the print head was utilizing the ASIC produced image data at a rate faster than the ASIC provided the image data, the image would not be printed at the desired position or required density.

To alleviate these problems, the system of Moh utilized a security ASIC between the image ASIC and the print head. The synchronous data stream from the image ASIC is not directly transmitted to the print head but is first sent to the security ASIC. The security ASIC 37 includes a First In First Out memory device 39, an encryption module 41, a shift register 43 and other control circuitry 44. The image data stream of image ASIC 33 is first stored in FIFO 39 and is subsequently sent to encryption module 41, shift register 43 and print head module 7. (Col. 5, lines 1-10).

In operation in Moh, when a mail piece "M" is detected, the postage meter 5 receives a message from the microcontroller 9 that a postage indicium of a particular value needs to be printed on the mail piece. The postage meter 5 accounts for the postage in accounting circuitry 31 and begins to acquire the necessary image data elements from the NVM 35 via the image ASIC 33. Image ASIC 33 sends the obtained image data in a serial and synchronous manner to FIFO 39 where it is buffered for subsequent use. For each clock pulse of a clock of image ASIC 33 eight blocks of data are sent with each data block containing 64 bits of data. Upon receiving a command from control circuitry 44, each individual data block is then sent in a parallel manner to encryption module 41 where it is encrypted and subsequently sent to shift register 43. The block of data in shift register 43 is then sent to a print head ASIC 45 where it is decrypted. The decrypted data block is then sent to a first print head buffer 47 until it is latched, upon receipt of a latch signal 48 from print head ASIC 45, into a second print head buffer 49. The data in buffer 49 is finally sent to a first print head 51 having nozzles 53 upon receipt of a fire pulse signal 54 from print head ASIC 45 in order to energize the print head nozzles 53 to print. Additionally, print head module 7 further includes third and fourth print head buffers 55, 57 which operatively interact with a second print head 59 having print head nozzles 61 based on latch signal 62 and fire pulse 63 in the same manner described above in connection with first print head 51 and its associated buffers 47, 49. (Col. 5, lines 15-47).

Because of the variation between encoder pulses caused by mailpiece velocity variations and inherent encoder pulse tolerances, the transmission and use of image

data from the FIFO 39 to the print heads 51 and 59 occurs asynchronously. However, the image ASIC 33 generates image data synchronously at eight blocks of data per image ASIC 33 clock pulse. In order to accommodate this inconsistency and to ensure that the required image data is available when needed by the print heads 51 and 59 and is not corrupted by being provided too quickly, the security ASIC 37 buffers the data in the FIFO 39 and turns the image generator 33 on and off as needed to ensure that the image data stored in the FIFO 39 remains within a predetermined range. (Col. 6, lines 35-48). Security ASIC 39 is designed such that it sends an on/off signal 66 to image ASIC 33 which, depending on the on/off signal value (i.e. high or low), turns the image ASIC 33 on or off. Security ASIC 37 is designed such that as long as FIFO 39 has greater than or equal to 8 blocks of data (8 of registers C1-C15) stored therein a low signal is sent to image ASIC 33 turning the image ASIC 33 off such that it stops generating a synchronous image data stream. On the other hand, if FIFO 39 has less than eight blocks of data stored therein (eight of registers C1-C15) a high signal is sent to image ASIC 33 which causes image ASIC 33 to begin generating the synchronous image data stream continuing at the point from which it had previously been turned off. (Col. 6, line 65 to Col. 7, line 10).

As further described in Moh, once the image ASIC 33 is turned on, it will generate at least eight blocks of data for each internal clock pulse. Thus, the regulated amount of buffered image data within the security ASIC 37 combined with its ability to "switch" the image ASIC 33 on and off ensures that 1) sufficient image data is made available to the print heads 51, 59 at the desired asynchronous rate to permit accurate indicia printing and 2) the stored image data is not corrupted by the synchronous generation of image data by the image ASIC 33. (Col. 7, lines 15-23).

As can be seen from the above description from Moh, the system of Moh relates to the printing of an indicium image that can account for variations in the mail piece speed as it is being transported past the print head as well as variations in encoder pulses due to tolerances of the encoder. The system in Moh is not in any way related to or describes a mail system that continuously computes indicia prior to and during mail

processing to increase the throughput of the mailing machine as in the present invention. The printing process described in Moh is for a single indicium that is generated when a request for printing is received. The system of Moh, as noted above, relates to the printing of an indicium that can account for variations in the mail piece speed as it is being transported past the print head as well as variations in encoder pulses due to tolerances of the encoder.

As such, the system of Moh does not disclose, teach or suggest generating a first indicium without accounting for the first indicium in the mailing machine as is recited in claim 1. As specifically described in Moh, any time an indicium is generated, the accounting is performed before the indicium is generated. (See Col. 5, lines 20-25: the postage meter 5 receives a message that a postage indicium of a particular value needs to be printed, the postage meter 5 accounts for the postage in accounting circuitry 31 and begins acquiring the necessary image data elements from the NVM 35). Thus, before any indicium are generated and stored in Moh, accounting for the indicium is performed. The Office Action contends that it would have been obvious to modify Moh shift the location of the accounting function to when the indicium is removed from the buffer in order to charge a customer for a generated indicium that is ready to print on a mailpiece. Note, however, that modifying Moh such that indicum are not accounted for when generated will modify the operation of the device in Moh. The system in Moh operates on the basic principle of a conventional postage meter. When the presence of a mail piece is detected, the microcontroller 9 sends a message to the postage meter 5 that a postage indicium of a particular value needs to be printed on the mail piece. The postage meter 5 accounts for the postage in accounting circuitry 31 and begins to acquire the necessary image data elements from the NVM 35 via the image ASIC 33. Modifying Moh as suggested by the Office Action would require a change in the basic principle under which Moh was designed to operate, as well as a substantial reconstruction and redesign of the elements disclosed in Moh. If the proposed modification of combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the reference are not

sufficient to render the claims prima facie obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

There is also no disclosure, teaching or suggestion in Moh of continuously generating a plurality of subsequent indicia in immediate succession without accounting for the plurality of subsequent indicia in the mailing machine and storing the plurality of subsequent indicia in the buffer until the buffer is full or a new postage value is set as is recited in claim 1. In Moh, all of the data that is sent from the image ASIC 33 to the FIFO 39 relates to a single indicium that is going to be printed by the printer. At no point during the operation of Moh will the FIFO 39 hold image data for any more than one single indicium. The Office Action contends that it would have been obvious to one of ordinary skill in the art to have modified Moh to include continuously generating a plurality of subsequent indicia in immediate succession for the advantage of processing mail more efficiently and storing the plurality of subsequent indicia in the buffer until the buffer is full or a new postage value is set, and provides reference to Col. 3, lines 49-54; Col. 6, lines 49-67; and Co. 7, lines 1-5 of Moh to support this contention.

Col. 3, lines 49-54 of Moh state "...wherein the switching apparatus regulates within a predetermined range an amount of the synchronous image data stream stored in the buffer by switching the image generator between the ON status and the OFF status thereby effectively permitting the printhead to use the synchronous image data stream in an asynchronous manner."

Col. 6, line 48, to Col. 7, line 13 of Moh are reproduced below.

> Referring to FIG. 3, an exploded view of the FIFO 39 is shown. FIFO 39 includes 15 individual registers C1-C15 which each can store one block (64 bits) of data. Additionally, a pair of pointers P1 and P2 is associated with the registers C1-C15. That is, pointer P1 identifies the next register C1-C15 whose block of data is to be sent to encryption module 41, while pointer P2 identifies the next register C1-C15 that will receive and store the next block of data coming from image ASIC 33. Thus, as a block of data is downloaded to the encryption module 41, the pointer P1 moves to the next sequential register C1-C15 whose data is next to be downloaded to encryption module 41. Moreover, as FIFO 39 receives a block of image data

from image ASIC 33, pointer P2 moves to the next sequential register C1-C15 which is to receive and store the next block of image data from image ASIC 33.

Security ASIC 39 is also designed such that it sends an on/off signal 66 to image ASIC 33 which, depending on the on/off signal value (i.e. high or low), turns the image ASIC 33 on or off. Security ASIC 37 is designed such that as long as FIFO 39 has greater than or equal to 8 blocks of data (8 of registers C1-C15) stored therein a low signal is sent to image ASIC 33 turning the image ASIC 33 off such that it stops generating a synchronous image data stream. On the other hand, if FIFO 39 has less than eight blocks of data stored therein (eight of registers C1-C15) a high signal is sent to image ASIC 33 which causes image ASIC 33 to begin generating the synchronous image data stream continuing at the point from which it had previously been turned off. The determination as to the number of registers C1-C15 which have data therein is based on the positional difference between pointers P1 and P2.

As previously discussed, once the image ASIC 33 is turned on, it will generate at least eight blocks of data for each internal clock pulse. Thus, the regulated amount of buffered image data within the security ASIC 37 combined with its ability to "switch" the image ASIC 33 on and off ensures that 1) sufficient image data is made available to the printheads 51,59 at the desired asynchronous rate to permit accurate indicia printing and 2) the stored image data is not corrupted by the synchronous generation of image data by the image ASIC 33.

It is unclear what the relevance of the passages cited by the Office Action have with respect to continuously generating a plurality of subsequent indicia in immediate succession without accounting for the plurality of subsequent indicia in the mailing machine and storing the plurality of subsequent indicia in the buffer until the buffer is full or a new postage value is set as is recited in claim 1. As noted above, system of Moh relates to the printing of an indicium that can account for variations in the mail piece speed as it is being transported past the print head as well as variations in encoder pulses due to tolerances of the encoder. This is performed, as described in the above paragraphs, using the FIFO 39 and ability of the security ASIC 37 to turn the image ASIC 33 on and off to ensure that sufficient image data is made available to the print heads 51, 59 at the desired asynchronous rate to permit accurate indicia printing and the stored image data is not corrupted by the synchronous generated of image data by the image ASIC 33 (Col. 6, lines 14-23). This is not the same, nor even remotely

related, to continuously generating a plurality of subsequent indicia in immediate succession. Once again, modifying Moh as suggested by the Office Action would require a change in the basic principle under which Moh was designed to operate, as well as a substantial reconstruction and redesign of the elements disclosed in Moh.

There is also no disclosure, teaching or suggestion in Moh of retrieving one of the indicium from the buffer and accounting for the indicium in at least one register in the mailing machine when the indicium is retrieved from the buffer as is recited in claim 1. In Moh, the accounting occurs before the indicium data is generated (as described above), and not when it is retrieved from the buffer.

As noted in the Office Action, Moh does not disclose storing a plurality of indicia. To overcome this deficiency, the Office Action relies on the reference to Bailey. Bailey is directed to a postage metering system that can print postage in different currencies (e.g., Euros or dollars) while ensuring that the currency that is printed is compatible with the accounting that is performed. Because of the ability to print indicia for different countries, the postage metering system stores a plurality of different country indicium graphics to permit the easy reconfiguration of the postage metering system between different countries. (Col. 2, lines 43-46). Note , however, that the indicium graphics are not the same as the indicia. The indicium graphics are the images used in the indicia, but are not actual indicia by themselves, as they have no value and cannot by themselves be used to evidence payment of postage. The system in Bailey does not disclose, teach or suggest storing a plurality of indicia.

For at least the above reasons, Applicants respectfully submit that claim 1 as amended is allowable over the prior art of record.

None of the other references cure the above deficiencies, as they were relied upon for other features. Claims 2-13, dependent upon claim 1, are allowable along with claim 1 and on their own merits.

Independent claims 14, 16, 24 and 33 as amended include limitations substantially similar to those of claim 1. For the same reasons give above with respect to claim 1, Applicants respectfully submit that claims 14, 16, 24 and 33 are allowable over the prior art of record. Claims 15, 17-23, 25-32 and 34, dependent upon claim 14, 16, 24 and 33, respectively, are allowable along with those claims and on their own merits.

In view of the foregoing remarks, it is respectfully submitted that the claims of this case are in a condition for allowance and favorable action thereon is requested.

Respectfully submitted,

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